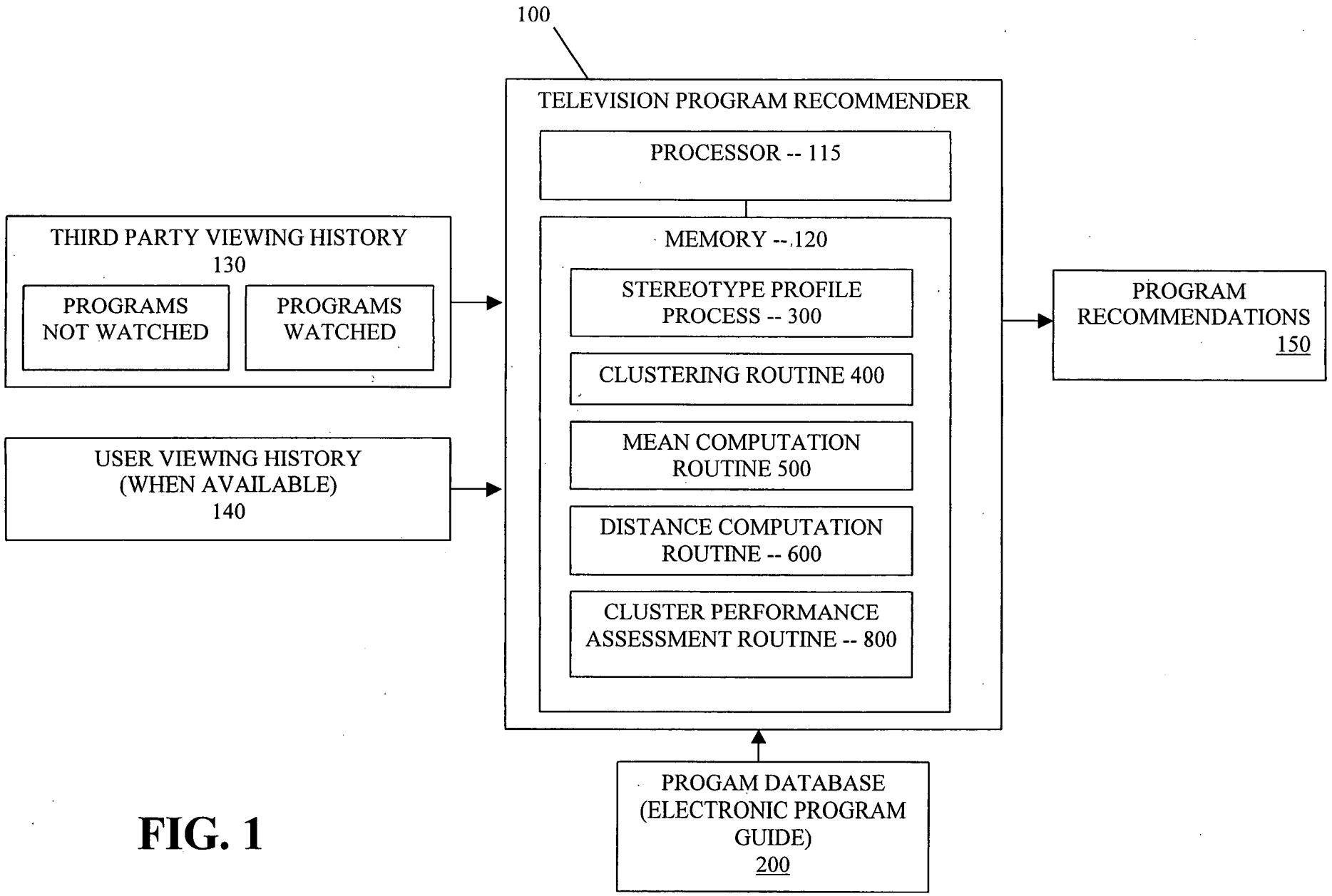
100
TELEVISION PROGRAM RECOMMENDER
PROCESSOR -- 115
MEMORY -- 120
STEREOTYPE PROFILE PROCESS -- 300
CLUSTERING ROUTINE 400
MEAN COMPUTATION ROUTINE 500
DISTANCE COMPUTATION ROUTINE -- 600
CLUSTER PERFORMANCE ASSESSMENT ROUTINE -- 800
THIRD PARTY VIEWING HISTORY 130
PROGRAMS NOT WATCHED
PROGRAMS WATCHED
USER VIEWING HISTORY (WHEN AVAILABLE) 140
PROGRAM RECOMMENDATIONS 150
PROGAM DATABASE (ELECTRONIC PROGRAM GUIDE) 200

FIG. 1

PROGRAM DATABASE - 200

	DATE/TIME 240	CHANNEL 245	TITLE 250	GENRE 255	...	ACTOR 270
205	11/18/99 -- 8:00 P.M.	CH 1	LUCY	COMEDY		CLINT DENIRO
210	11/18/99 -- 8:30 P.M.	CH 1	AL'S FAMILY	SITCOM		JENNIFER COX
	...					
220	11/18/99 -- 9:00 P.M.	CH 3	YOUR HOUSE	DRAMA		LUCY VANCE

FIG. 2

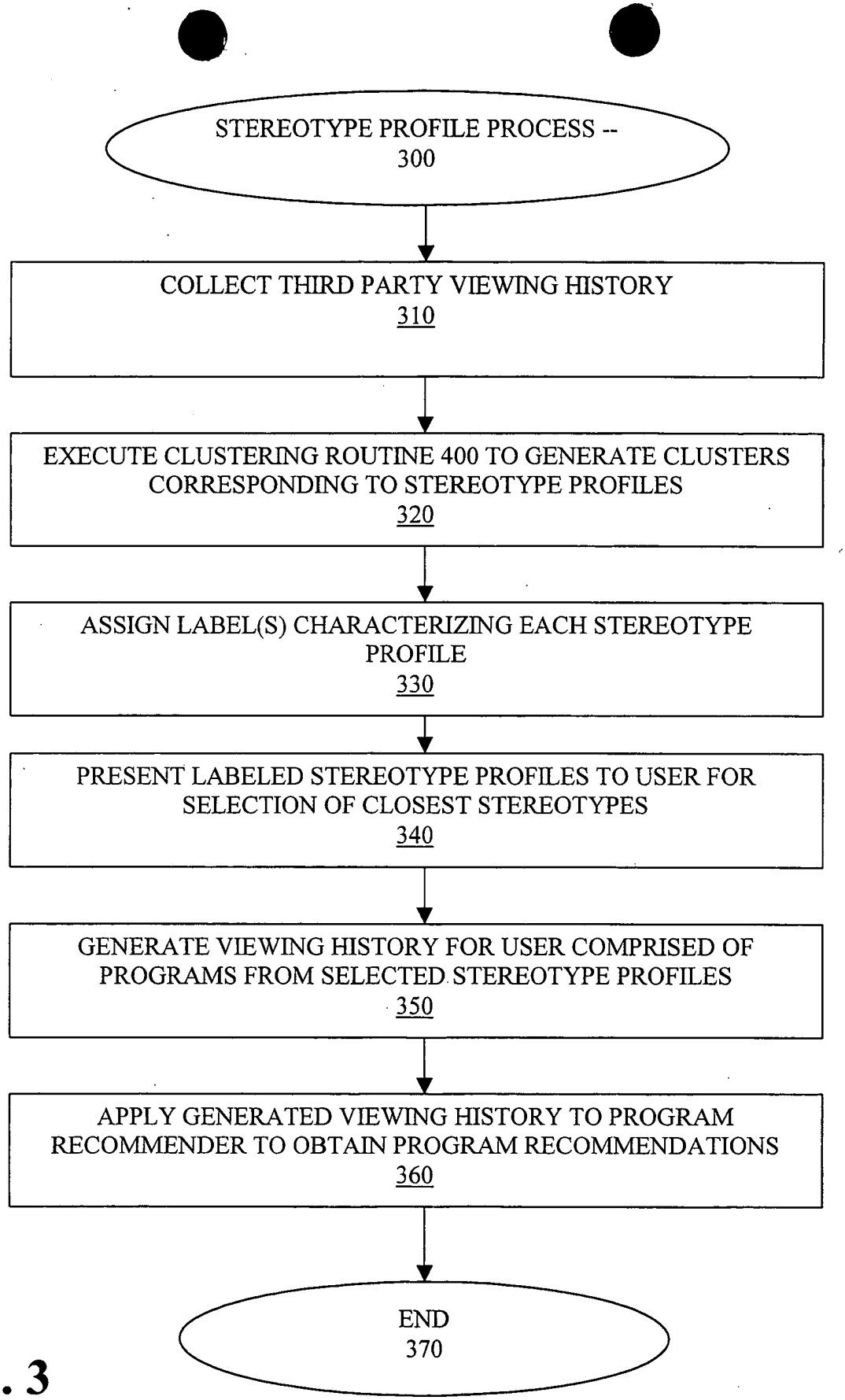
STEREOTYPE PROFILE PROCESS -- 300
COLLECT THIRD PARTY VIEWING HISTORY 310
EXECUTE CLUSTERING ROUTINE 400 TO GENERATE CLUSTERS CORRESPONDING TO STEREOTYPE PROFILES 320
ASSIGN LABEL(S) CHARACTERIZING EACH STEREOTYPE PROFILE 330
PRESENT LABELED STEREOTYPE PROFILES TO USER FOR SELECTION OF CLOSEST STEREOTYPES 340
GENERATE VIEWING HISTORY FOR USER COMPRISED OF PROGRAMS FROM SELECTED STEREOTYPE PROFILES 350
APPLY GENERATED VIEWING HISTORY TO PROGRAM RECOMMENDER TO OBTAIN PROGRAM RECOMMENDATIONS 360
END 370

FIG. 3

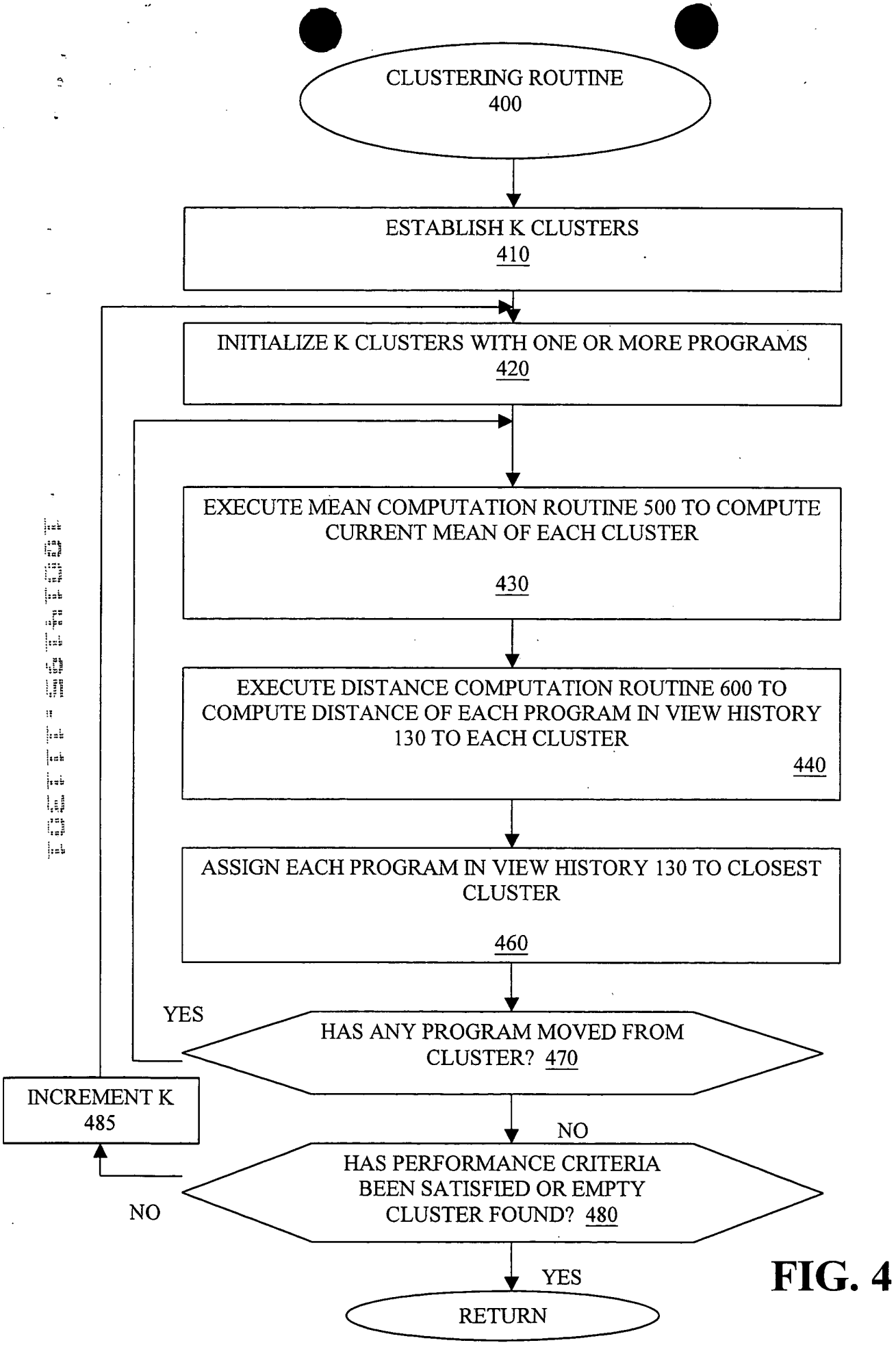
CLUSTERING ROUTINE
400
ESTABLISH K CLUSTERS
410
INITIALIZE K CLUSTERS WITH ONE OR MORE PROGRAMS
420
EXECUTE MEAN COMPUTATION ROUTINE 500 TO COMPUTE CURRENT MEAN OF EACH CLUSTER
430
EXECUTE DISTANCE COMPUTATION ROUTINE 600 TO COMPUTE DISTANCE OF EACH PROGRAM IN VIEW HISTORY 130 TO EACH CLUSTER
440
ASSIGN EACH PROGRAM IN VIEW HISTORY 130 TO CLOSEST CLUSTER
460
YES
HAS ANY PROGRAM MOVED FROM CLUSTER? 470
INCREMENT K
485
NO
HAS PERFORMANCE CRITERIA BEEN SATISFIED OR EMPTY CLUSTER FOUND? 480
NO
YES
RETURN

FIG. 4

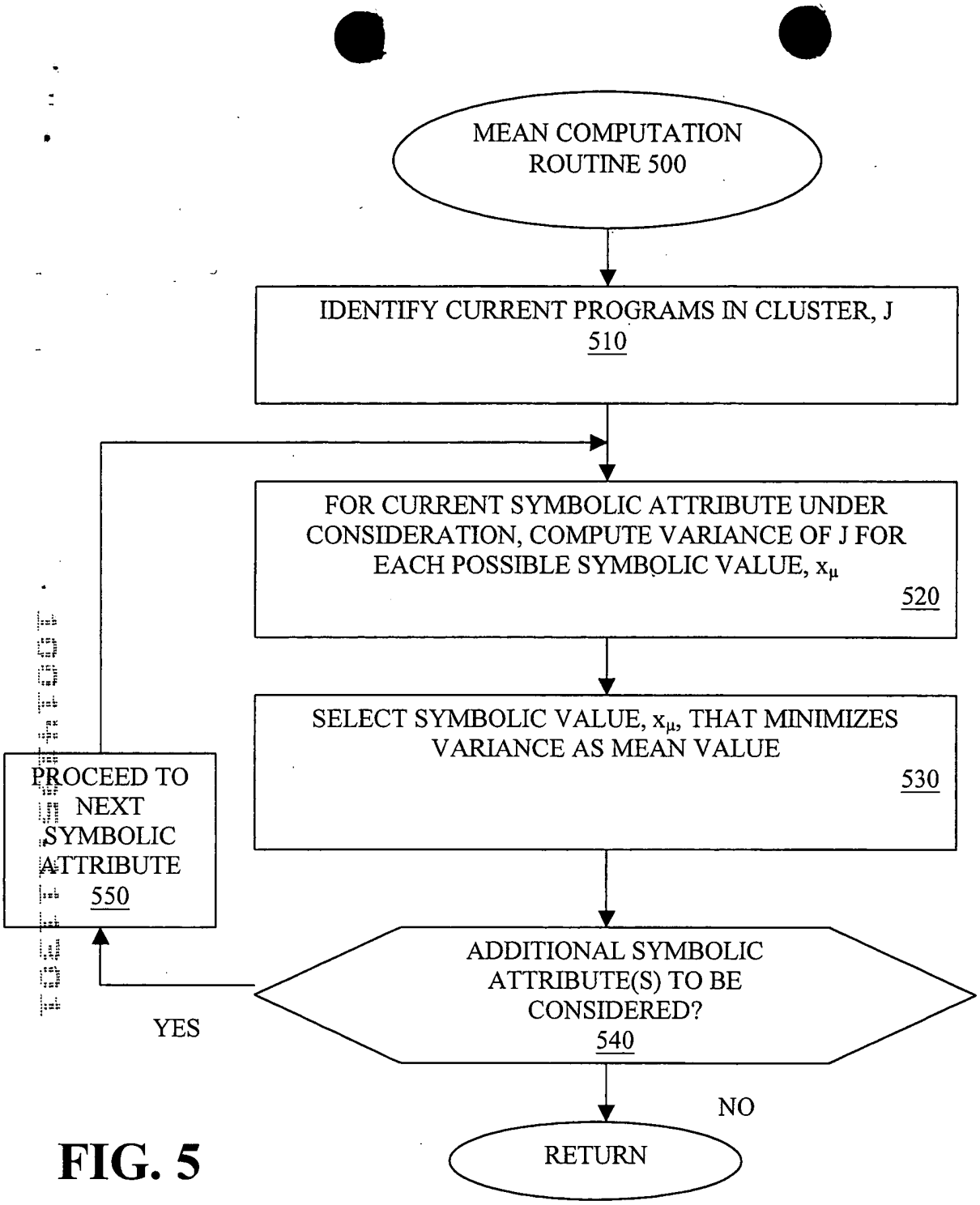
MEAN COMPUTATION ROUTINE 500
IDENTIFY CURRENT PROGRAMS IN CLUSTER, J
510
FOR CURRENT SYMBOLIC ATTRIBUTE UNDER CONSIDERATION, COMPUTE VARIANCE OF J FOR EACH POSSIBLE SYMBOLIC VALUE, x_μ
520
SELECT SYMBOLIC VALUE, x_μ, THAT MINIMIZES VARIANCE AS MEAN VALUE
530
ADDITIONAL SYMBOLIC ATTRIBUTE(S) TO BE CONSIDERED?
540
YES
PROCEED TO NEXT SYMBOLIC ATTRIBUTE
550
NO
RETURN

FIG. 5

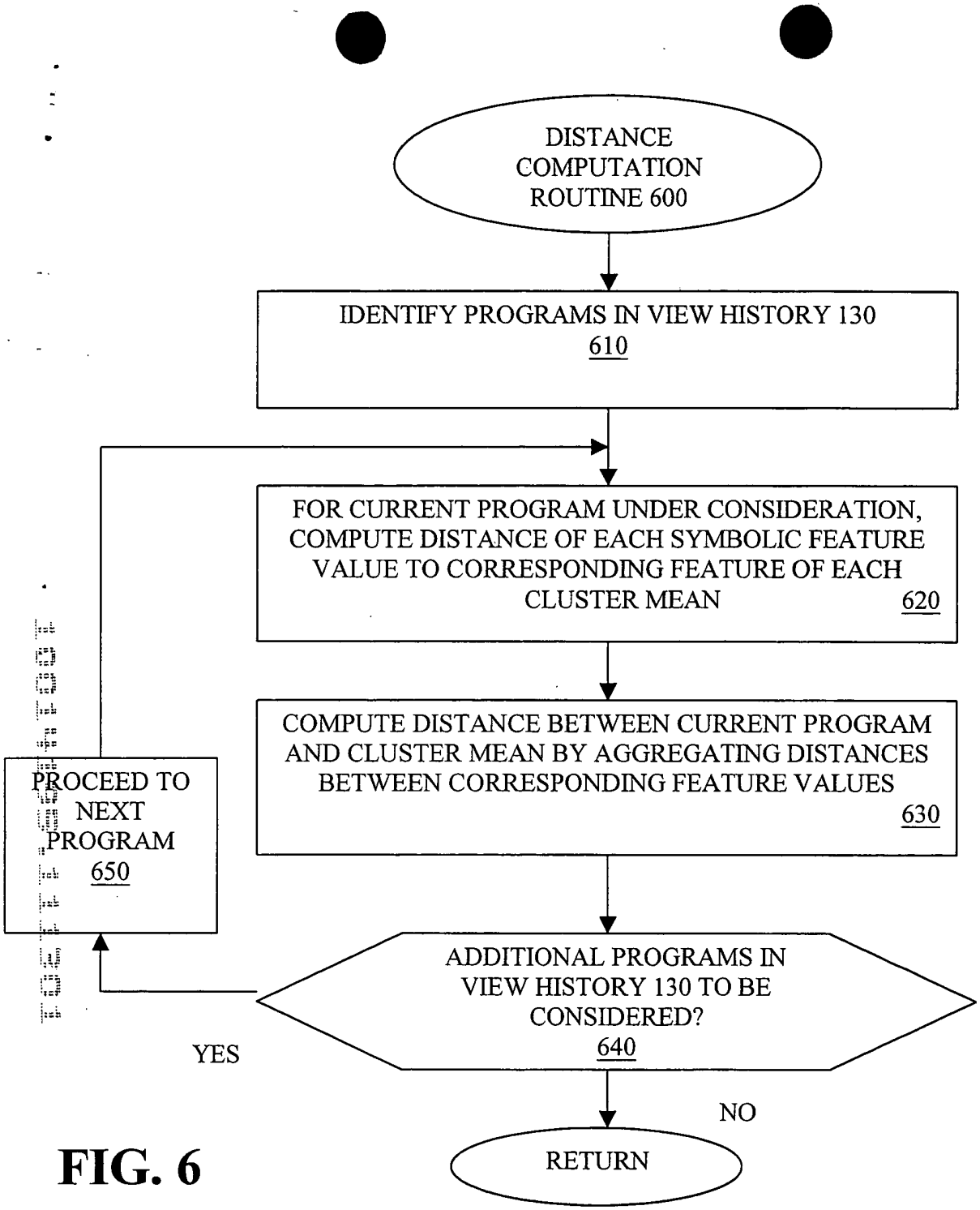
DISTANCE COMPUTATION ROUTINE 600
IDENTIFY PROGRAMS IN VIEW HISTORY 130
610
FOR CURRENT PROGRAM UNDER CONSIDERATION, COMPUTE DISTANCE OF EACH SYMBOLIC FEATURE VALUE TO CORRESPONDING FEATURE OF EACH CLUSTER MEAN
620
COMPUTE DISTANCE BETWEEN CURRENT PROGRAM AND CLUSTER MEAN BY AGGREGATING DISTANCES BETWEEN CORRESPONDING FEATURE VALUES
630
ADDITIONAL PROGRAMS IN VIEW HISTORY 130 TO BE CONSIDERED?
640
YES
PROCEED TO NEXT PROGRAM
650
NO
RETURN

FIG. 6

Channel Feature Value Occurrence Table - 700

	Classes	
Feature Values	Watched	Not Watched
EBC	353	0
ASPN	1	18
ABS	145	5

FIG. 7A

Feature Value Pair Distance Table -750

	EBC	ASPN	ABS
EBC	0	1.895	0.066
ASPN	1.895	0	1.828
ABS	0.066	1.828	0

FIG. 7B

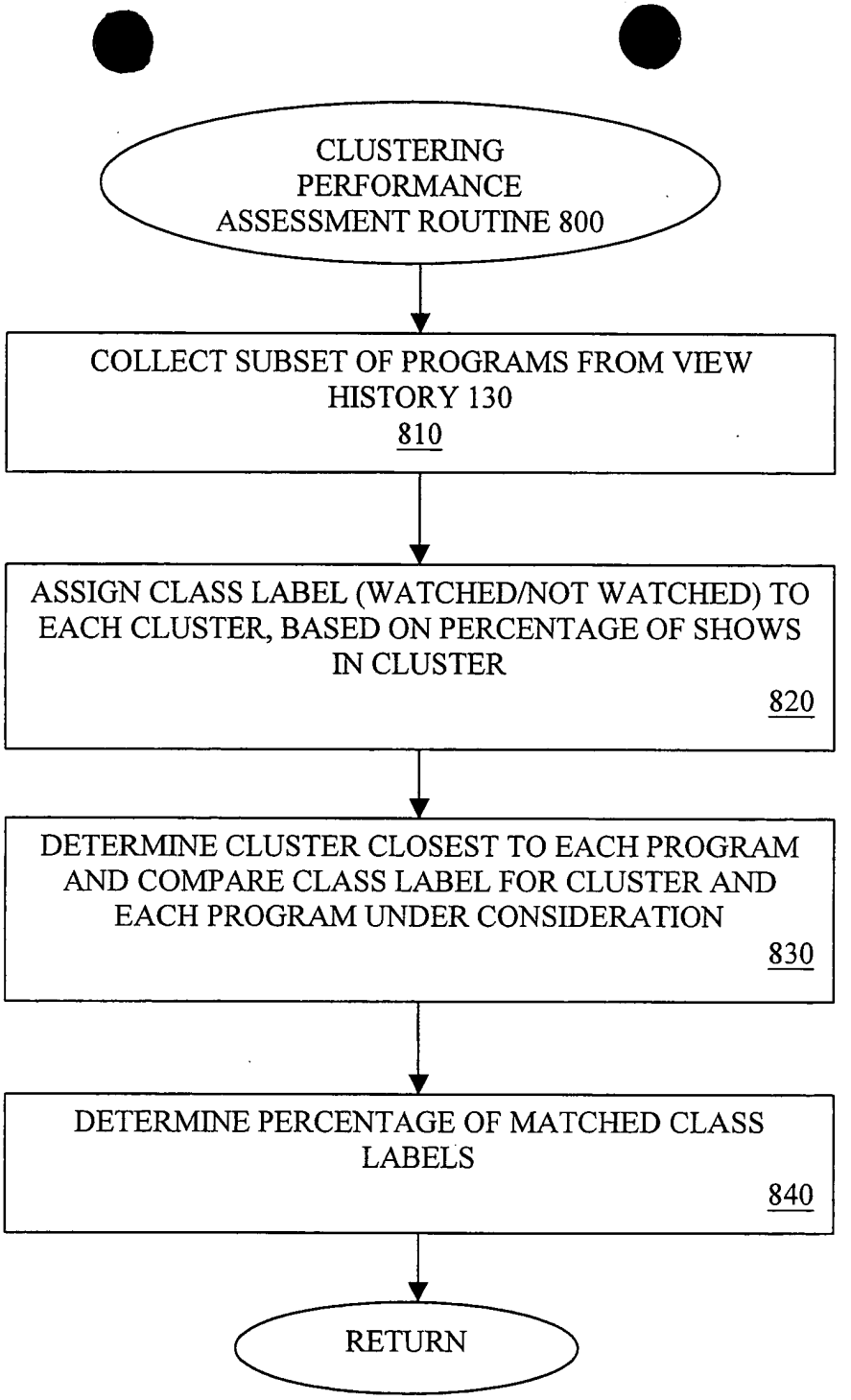
CLUSTERING PERFORMANCE ASSESSMENT ROUTINE 800
COLLECT SUBSET OF PROGRAMS FROM VIEW HISTORY 130
810
ASSIGN CLASS LABEL (WATCHED/NOT WATCHED) TO EACH CLUSTER, BASED ON PERCENTAGE OF SHOWS IN CLUSTER
820
DETERMINE CLUSTER CLOSEST TO EACH PROGRAM AND COMPARE CLASS LABEL FOR CLUSTER AND EACH PROGRAM UNDER CONSIDERATION
830
DETERMINE PERCENTAGE OF MATCHED CLASS LABELS
840
RETURN

FIG. 8